US Army Corps of Engineers®
Engineer Research and Development Center

Seismic Design of Buildings: A PROSPECT Course

Description

The Proponent-Sponsored Engineer Corps Training (PROSPECT) course 35SDB01A, "Seismic Design for Buildings," is classroom-based training that concentrates on the design and analysis principles used in the seismic design of new buildings. "Seismic Design" uses both tri-service design guidance and national model building codes as references. The course is taught on the Urbana campus of the University of Illinois, and involves instructors from Construction Engineering Research Laboratory (CERL), academia, and the private sector.

The course is intended for structural engineers who are not thoroughly familiar with seismic design. Nominees must be assigned to and/or have: (a) Occupational Series: 0810 and 0830 (Waivers must be submitted for other occupational series), (b) Grade: GS-07 or above. The course is open to Air Force, Navy, and other Federal personnel.

An online course description of "Seismic Design for Buildings" (class size, course location, content, length, and cost) is available through the USACE Professional Development Support Center (PDSC) web site:

http://pdsc.usace.army.mil/CourseListDetails1.asp?Cntrl_Num=27

This web site also includes course schedule, registration, and payment details, which are currently handled through the PDSC. Registrar and administrative contact information (street address, telephone, and fax numbers) is available through URL:

http://pdsc.usace.army.mil/pdsc1.asp

Capabilities

Through lectures and testing, this course presents:

1. Overview of structural dynamics
2. Introduction to seismic design
3. Seismic design criteria
4. Seismic design procedures
5. Structural elements of (including illustrative examples):
   a. diaphragms
   b. walls
   c. frames
   d. masonry and concrete bearing walls
   e. steel and concrete frames
   f. wood and cold-formed steel stud walls.

At the conclusion of this class, students will be able to design/review seismic design analyses and drawings more efficiently upon completing this course.

Supporting Technology

The manuals used in this class are:

- TI 809-04, *Seismic Design for Buildings*, available through the U.S. Army Engineering & Support Center's "TechInfo — Engineer Publications" web page, via URL:
- http://www.hnd.usace.army.mil/techinfo/ti/809-04/ti80904.htm
- *2003 International Building Code* (International Code Council [ICC], 2003).

- Corps Specifications addressing certain aspects of seismic issues.
- ASCE 7-02, *Standard - Minimum Design Loads for Buildings and Other Structures, SEI* (American Society of Civil Engineers [ASCE] Press, 2004).

Benefits

This course is designed around seismic provisions of national model building codes that have been rewritten to reflect seismic design technology and design procedures that have advanced dramatically in recent years. Training engineers to implement these new designs will ensure that new buildings will meet the latest codes and standards, thereby providing a capability to protect critical equipment from damaging effects of seismic events so that government facilities remain fully functional following seismic activity.

Success Stories

PROSPECT courses are routinely evaluated for useful content and effective presentation—after classroom presentation, or via the web. Classroom presentation of PROSPECT course 35SDB01A has generally earned superlative comments about instructors' extensive knowledge, presentation skills, and ability to keep the class involved.

ERDC POC(s)

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